

DMITRIYEV, Valentin Aleksandrovich, doktor tekhn.nauk, prof.;
DOLGOLENKO, Anatoliy Aleksandrovich, doktor tekhn.nauk,
prof.; MARKOV, Vladimir Georgiyevich, kand.tekhn.nauk, dotsent;
SMIRNOV, Sergey Aleksandrovich, kand.tekhn.nauk, dotsent;
SIROTSKIY, V.F., doktor tekhn.nauk, prof., retsenzent;
MAL'TSEV, V.N., kand.tekhn.nauk, dotsent, retsenzent;
VORONKOVSKAYA, A.P., red.; VOLCHOK, K.M., tekhn. red.

[Theory of mechanisms and machines, machine parts and hoisting-
conveying machinery] Teoriia mekhanizmov i mashin, detali mashin
i pod'emno-transportnye mashiny. Leningrad, Izd-vo "Rechnoi tran-
sport," 1963. 580 p. (MIRA 16:6)

(Mechanical engineering) (Hoisting machinery)
(Conveying machinery)

IKONNIKOV, Sergey Alekseyevich, dots., kand. tekhn. nauk; KRAKOVSKIY, Ivan Ivanovich, prof., doktor tekhn. nauk; MAL'TSEV, Vasilii Nikolayevich, dots., kand. tekhn. nauk; CHACHKHLANI, Igor' Konstantinovich, dots., kand. tekhn. nauk. Prinimal uchastiye RUSIN, V.N.; LAKHANIN, V.V., prof., doktor tekhn. nauk, retsenzent; FROLOV, V.M., dots., kand. tekhn. nauk, retsenzent; KHOZE, A.N., kand. tekhn. nauk, retsenzent; KOTIN, A.F., dots., kand. tekhn. nauk, retsenzent; MYASNIKOV, N.V., red.; SHLENNIKOVA, Z.V., red. izd-va; BODROVA, V.A., tekhn. red.

[Power plants on ships] Sudovye silovye ustanovki. By S.A.Ikonnikov i dr. Moskva, Izd-vo "Rechnoi transport," 1961. 519 p. (MIRA 14:11)

1. Sotrudniki konstruktorskikh byuro Ministerstva rechnogo flota
(for Lakhanin, Frolov, Khoze, Kotin).
(Marine engineers)

MAL'TSEV, V.N., kandidat tekhnicheskikh nauk.

Designing tubular air heaters for ships. Trudy GIIVT no.13:129-
139 '55. (MLRA 10:1)
(Boilers, Marine)

L 04163-67

ACC NR: AT6023231

approach of the ship to the site of unloading is ensured by two line-of-direction beacons having the form of wooden panels. The rear beacon was placed on the outcrops of bedrock and the front beacon on the continental ice. The true direction of the line is $151^{\circ}42'.8-331^{\circ}42'.8$. The entire geodetic set of points on the coast of Alasheyev Bay encompasses a region with an area of about 15 km^2 , in the center of which is the Molodezhnaya station. This set of points will be used in the future to determine the elements of glacier movement and will be extended eastward on Lamykin Peninsula in order to survey the entire peninsula, which will make it possible for ships to use the polynya forming along the peninsula to approach the station and thus facilitate sailing conditions in this region. Orig. art. has: 1 table.

SUB CODE: 08/ SUBM DATE: 13Dec65

2/2 *fdh*

L 04163-67 EWT(1) GW
 ACC NR: AT6023231 (N) SOURCE CODE: UR/2732/66/044/000/0185/0188

AUTHOR: Mal'tsev, V. N.; Pavlov, A. A.; Vaygachev, A. Z.

ORG: none

TITLE: Geodetic surveys in the Alasheyev Bay

SOURCE: Sovetskaya antarkticheskaya ekspeditsiya, 1955- . Sed'moy reys d/e "Ob'", 1961-1962 gg.; nauchnyye rezul'taty i materialy nablyudeniy (Seventh voyage of the diesel-powered "Ob'", 1961-1966; scientific results and observation data); trudy ekspeditsii, v. 44. Leningrad, Gidrometeolizdat, 1965, 185-188

TOPIC TAGS: geodetic survey, Antarctic climate, oceanographic expedition, ~~ocean bottom~~, OCEAN FLOOR TOPOGRAPHY, AERIAL SURVEY, SHIP NAVIGATION / ALASHEYEV BAY

ABSTRACT: Geodetic surveys were carried out by the hydrographic group of the seventh Antarctic expedition in 1962 on the coast of Alasheyev Bay in the region of the new Antarctic station Molodezhnaya to set up a geodetic base for coordinating the ground and air photographic surveys and for a visual determination of the location of a ship at the approaches to the coast of the bay. As a result of investigating the bottom relief of the sea in the coastal part of Alasheyev Bay it was possible to find a channel for the safe approach to the shore and a convenient place for mooring the ship Ob' immediately next to a barrier for unloading. The safety of the

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L 31280-66

ACC NR: AP6020239

leucopenia, sharply pronounced hypo- or hyperthermia, and the necrotic character of tissue reaction to injection of antibodies at the peak of radiation sickness points to heightened sensitivity of irradiated animals to toxic substances contained in typhoid vaccine. The vaccination aggravated the course of radiation sickness. This was evidenced by the lower content of leucocytes and the more pronounced drop in bodyweight for rabbits immunized following irradiation compared to animals irradiated but not immunized. Similar features of the action of vaccination against the background of damage by ionizing radiation often led to the death of the animals. Deterioration of the general condition following vaccination was combined in irradiated animals with decreased capacity for antibody produced. Normalization of immunological reactivity was noted in our experiments only when the vaccination was done on the 40th day following irradiation. Orig. art. has: 3 figures. [JPRS]

SUB CODE: 06 / SUBM DATE: 02Mar64 / ORIG REF: 009 / OTH REF: 002

Card 2/2 10

L 31280-66 EWT(1)/T JK

ACC NR: AP6020239

SOURCE CODE: UR/0241/66/011/002/0070/0075

AUTHOR: Mal'tsev, V. N.

ORG: none

TITLE: Characteristics of reactions to bacterial antigens following irradiation

SOURCE: Meditsinskaya radiologiya, v. 11, no. 2, 1966, 70-75

TOPIC TAGS: bacterial antigen, radiation biologic effect, rabbit, immunization, radiation sickness, antibody, vaccine, human ailment

ABSTRACT: One of the tests used in evaluating the severity of post-vaccinal reactions is the response of irradiated rabbits to bacterial antigens. A study was performed on 40 rabbits. The animals were intravenously given 200 million microbial bodies (in a volume of 0.2 ml) and 500 million microbial bodies (in a volume of 0.5 ml) in subcutaneous immunization. The animals were irradiated with a dose of 700 rads on the ECO-2 unit, with a dose strength of 1,254 rads/minute and an irradiation time of 2 minutes 45 seconds. The purpose of the study was to record the dynamics of changes in the postvaccinal reaction in the course of radiation sickness, and also the time required for normalization of indices studied. For this purpose, vaccination was carried out on the 1st, 3rd, 10th, and 20th, or even on the 40th day following irradiation. Choice of immunization period was derived from the phasic character of the course of radiation sickness. Prolonged postvaccinal

Card 1/2

UDC: 612.017.014.482

L 23404-66

ACC NR: AP6014016

of 2.2 with reference to the washed vaccine and a factor of 6.3 with reference to the initial vaccine. One may assume that the vaccine cells were coated with a layer of immune globulin which prevented deterioration of the cells and release of toxic products by them. Neither type of treatment reduced significantly the immunogenicity of the vaccine either for irradiated or non-irradiated animals. The degree of immunity produced in irradiated animals was lower than that produced in non-irradiated animals both before and after treatment of the vaccine. Orig. art. has: 2 figures. [JPRS]

SUB CODE: 06 / SUBM DATE: 15Nov64 / ORIG REF: 010

Card 2/2 *20*

L 23404-66 EWT(m)

ACC NR: AP6014016

SOURCE CODE: UR/0016/65/000/008/0088/0091

AUTHOR: Maltsev, V. N.--Maltsev, V. N.

ORG: none

TITLE: Experimental study of possibilities of reducing the toxicity of typhoid vaccines for irradiated animals

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 8, 1965, 88-91

TOPIC TAGS: radiation biologic effect, mouse, vaccine, serum, bacterial disease, immunology

ABSTRACT: Determination of TD_{50} of a heated typhoid vaccine prepared from the rinsings of a 24-hour agar culture of S. typhi showed that the vaccine, as expected, was more toxic to mice irradiated with a 300 r dose of x-rays than to non-irradiated mice. The ratio of the toxicity to irradiated vs. that to non-irradiated mice was 1.6:1. The toxic action of a vaccine is due to a considerable extent to the presence of products of autolysis of cells of the microorganism. To remove these products, the vaccine was washed with a physiological saline solution on a centrifuge. As a result the toxicity of the vaccine was reduced by a factor of 2.5 for irradiated mice and a factor of 3.1 for non-irradiated mice. Sensitization of the washed vaccine with typhoid immune serum followed by additional washing to remove the unreacted serum lowered the toxicity of the vaccine still further, by a factor

UDC: 615.371:576.851.491-015.17-012+615.371:576.851.491-015.17-07:616-001.28-092.9

Card 1/2

MAL'TSEV, V.N., kand. tekhn. nauk; KONOVALOV, G.V., mladshiy nauchnyy
sotrudnik

Passage to the Antarctic ice plateau from Molodezhnaya Station.
Inform. biul. Sov. antark. eksp. no.51:52-54 '65.

(MIRA 18:9)

1. Gidrograficheskoye predpriyatiye Ministerstva morskogo flota
SSSR (for Mal'tsev). 2. Arkticheskiy i antarkticheskiy nauchno-
issledovatel'skiy institut (for Konovalov).

MAL'TSOV, V.N., kand. tekhn. nauk

Depths of Gundersen Back. Inform. biol. Sov. antark. eksp.
no.47:43-44 '64. (HRA 13:4)

1. Gidrograficheskoye predpriyatiye Glavnogo severnogo
morskogo puti.

MA, TSEV, V.N., kand. tekhn. nauk

Hydrographic investigation of the Molodetsnaya Station region.
Inform. biul. Sov. antark. eksp. no. 44: 17-21 '63. (MIRA 27: 1)

1. Gidrograficheskaya predpriyatiye Glavnogo severnogo morskogo
puti.

MAKUSEV, V. M., Kazakhstani

Determining the position of a vessel by observations of the sea
and of different landmarks. Srednyaya (1953) 1/1.

(1953 1/1)

1. Grids of the charts are preferably drawn on a grid.
Analogous markings are used.

MAL'TSEV, V.N., kand.tekhn.nauk

Design of aerological towers for sending out radio probes in
Antarctica. Inform. biul. Sov. antark. eksp. no.38:37-39 '63.
(MIRA 16:7)

1. Pyataya kontinental'naya ekspeditsiya.
(Antarctic regions---Radio meteorology)

MAL'TSEV, V.M., kand. tekhn. nauk

Deposition of transported snow on the windward and leeward
sides of a structure. Inform. biul. Sov. antark. eksp. no. 36:
12-15 '62. (MIRA 16:4)

1. Gidrograficheskoye predpriyatiye Glavnogo upravleniya
Severnogo morskogo puti.
(Antarctic regions--Snow)

MAL'TSEV, V., kand.tekhn.nauk

Soviet hydrographic investigations in the Antarctic. Mor.flot.
22 no.12:10-11 D '62. (MIRA 15:12)
(Antarctic regions--Hydrography)

MAL'TSEV, V.N., kand.tekhn.nauk

Course taken by the diesel-electric ship "Ob" in
approaching the Australian base at Mawson Station.
Inform.biul.Sov.antark.eksp. no.18:30-31 '60.
(MIRA 13:7)

1. Gidrograficheskoye predpriyatiye Glavsevmorputi.
(Mawson Station region--Hydrography)

MAL'TSEV, V.N., kand.tekhn.nauk

In search of the Banzare Bank. Inform.biul.Sov.antark.eksp.
no.14:31-32 '60. (MIRA 13:6)

1. Gidrograficheskoye predpriyatiye Glavsevmorputi.
(Banzare Bank)

MAL'TSEV, V.N., kand.tekhn.nauk

Bottom relief of the depression at Cape Igol'nyy. Inform.
biul.Sov.antark.eksp. no.13:38-39 '59. (MIRA 13:8)

1. Gidrograficheskoye predpriyatiye Glavsevmorputi.
(Cape Good Hope region--Submarine topography)

MAL'TSEV, V.N., kand.tekhn.nauk

Principal structural forms of the bottom relief of the Davis Sea.
Inform.biul.Sov.antark.eksp. no.12:14-16 '59.

(MIRA 13:6)

1. Gidrograficheskoye predpriyatiye Glavsevmorputi.
(Davis Sea--Submarine topography)

MAL'TSEV, V.N., kand.tekhn.nauk

Investigating the approaches to the Lazarev South Polar Station.
Inform.biul.Sov.antark.eksp. no.11:5-8 '59. (MIRA 13:5)

1. Gidrograficheskoye predpriyatiye Glavsevmorputi.
(Lazarev region, Antarctica--Hydrographic surveying)

MAL'TSEV, V.N., kand. tekhn. nauk

Discovery of underwater bottom elevation in the Indian Ocean.
Inform. biul. Sov. antark. eksp. no. 4:43-48 '59.

(MIRA 12:11)

1. Gidrograficheskoye predpriyatiye Glavsevmorputi.
(Indian Ocean--Submarine topography)

MAL'TSEV, V.

Piloting tractor-sleigh trains in the Antarctic continent.
Mor.flot 18 no.3:7-9 Mr '58. (MIRA 11:4)

1. Nachal'nik gruppy gidrograficheskogo predpriyatiya Glavsevmorputi.
(Antarctic regions--Tractor trains)
(Pilots and pilotage)

MAL'TSEV, Vladimir Nikolayevich, kandidat tekhnicheskikh nauk; ALEKSEYEV, A.I.
tekhnicheskii redaktor

[Latitudinal magnetic compensator] Shirotnyi magnitnyi kompensator.
Moskva, Izd-vo "Morskoi transport," 1956. 109 p. (MLRA 9:11)
(Compass) (Magnetism, Terrestrial)

POKHIL, P.F.; MAL'TSEV, V.M.; SELFZNEV, V.A.

Temperature inhomogeneities in the tongue of flame in condensed systems.
Zhur. fiz. khim. 39 no.3:788-789 Mr '65. (MIRA 18;7)

1. Institut khimicheskoy fiziki AN SSSR.

SHCHERBAK, G.S.; MAL'TSEV, V.M.

Determination of the efficient deflection angle of a drilling tool
in percussion drilling. Izv.AN Kazakh.SSR.Ser.gor.dela no.2:74-84
'61. (MIRA 15:2)

(Boring)

MALITSEV, V.M.

The SPBA automotive pneumatic boring unit. Biul.tekh.-ekon.inform.
no.6:4-6 '58. (MIRA 11:8)
(Boring machinery)

BARASHENKOV, S.; MALTSEV, V.M.; HUANG TZU-CHANG

Cross sections for strange particle production. Pt. 2. Acta
physica Pol 23 no.6:765-771 Je '63.

1. Joint Institute for Nuclear Research, Laboratory of Theoretical
Physics, Dubna.

BELYAKOV, V.A.; BOYADZHIYEV, A.V.; VAN YUN-CHAN; VEKSLER, V.I.; VIRYASOV,
N.M.; KHIM KHI IN; Kladnitskaya, Ye.N.; Kuznetsov, A.A.;
MAL'TSEV, V.M.; NGUYEN DIN TY; PENEV, V.N.; SOLOV'YEV, M.I.

Production of Λ (Σ^0)-hyperons and K^0 -mesons in interactions
between 7 Gev. π^+ -mesons and carbon. Zhur. eksp. i teor. fiz.
46 no.5:1586-1597 My '64. (MIRA 17:6)

1. Ob'yedinennyy institut yadernykh issledovaniy.

BELYAKOV, V.A.; BOYADINHIYEV, A.V.; VINYAGOV, N.M.; MAL'OSOV, S.V.

Formation and interaction mechanism of particles on a carbon nucleus. *Acta physica Pol* 2; no.6:781-79; 1968.

1. Joint Institute of Nuclear Research, Laboratory of High-Energy Computer Center, Laboratory of Theoretical Physics, Dubna, U.S.S.R.

L H1305-60

ACC NR: AP6019629

with energies above 200 MeV, but that the fission of heavy nuclei by lower energy particles requires further study. Orig. art. has: 3 figures.

SIB CODE: 20 SUBM DATE: 00 ORIG. REF: 005 OTH REF: 006

Card 3/3 hg

L 41305-66

ACC NR: AP6019629

shapes of the fragments at the moment of fission, but the effect of higher powers of the deformation factor on the Coulomb energy was taken into account by the use of effective deformation parameters that were calculated by a successive approximation method. It is asserted that that technique made it possible more simply to obtain the same results as those obtained with the use of Legendre polynomials up to the 15-th degree by G.A.Pik-Pichak and V.M.Strutinskiy (Sb. Fizika deleniya atomnykh yader, str. 12. Gostekhizdat, M., 1962). The position of the maximum of the theoretical curve giving yield as a function of fragment mass for fissions initiated by 340 MeV protons was in good agreement with that of the experimental curve of P.S.Stevenson, H.G.Hicks, W.E.Nervik, and D.R.Nethaway (Phys.Rev., 111, 886 (1959)) and the calculated total fission cross section was in good agreement with experimental values, but the calculated yield for highly asymmetric fission was significantly below the experimental yield. That discrepancy is ascribed to an unspecified simplification employed in the calculations. The calculated yields of Cs^{134} - Cs^{137} fragments as functions of the incident proton energy were in good agreement with experimental data (when adjusted to the experimental yields at a proton energy of 350 MeV) for proton energies above 200 MeV. The experimental yields of Cs^{135} and Cs^{137} at lower proton energies were considerably higher than the calculated yields, and it is suggested that the discrepancy may be due to the effect of a second fission mechanism. It is concluded that the statistical theory of fission, together with the cascade-evaporation model, gives a good account of the main features of the fission of heavy nuclei initiated by particles

Card 2/3

L 41305-66 EWT(m)/EWP(t)/EFT LJP(c) JC/30

ACC NR: AP6019629

(A, N)

SOURCE CODE: UR/0048/66/030/002/0337/0340

AUTHOR: Barashenkov, V.S.; Mal'tsev, V.M.; Toneyev, V.D.

ORG: Theoretical Physics Laboratory, Joint Institute for Nuclear Research (Laboratoriya teoreticheskoy fiziki Ob'yedinennogo instituta yadernykh issledovaniy)

TITLE: Calculation of fast particle initiated nuclear fission /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 337-340

TOPIC TAGS: nuclear fission, nuclear model, cascade, ~~evaporation~~ ^{evaporation}, proton bombardment, uranium.

ABSTRACT: The authors have employed a computer to perform Monte Carlo calculations of the fission of ^{238}U induced by up to 700 MeV protons on the basis of the cascade-evaporation model and the statistical theory of fission of P.Fong (Phys.Rev., 102, 434 (1956)), and have compared the results with experimental data from several sources. ^{238}U was chosen for the calculations because the most experimental data are available for it. Other features of the interaction of fast protons with ^{238}U , calculated at the same time, are discussed elsewhere by the authors (Izv. AN SSSR Ser. fiz., 30, 322 (1966) ?see Abstract AP6019626/). The calculations are described very briefly. Legendre polynomials up to only the third degree were employed in the expressions for the

Card 1/3

L 41289-66

ACC NR: AP6019611

Ta¹⁸¹ (p,xn) reactions for x = 1, 3, 4, 5, and 6 showed that the contribution of compound nucleus formation decreases smoothly from 100% at proton energies below 20 MeV to about 20% at a proton energy of 85 MeV. The calculated excitation functions were in quantitative agreement with the experimental data, except for the cases x = 1 and x = 4, where the deviations somewhat exceeded the experimental error. The dependence on proton energy of the relative contribution of the two reaction mechanisms derived from the Ta¹⁸¹ (p,xn) data was employed to calculate excitation functions for Ta¹⁸¹ (p,pxn) reactions and for reactions on Ir and Er. Satisfactory agreement with the experimental data was found. The agreement was particularly good for the Ta¹⁸¹ (p,4n) reaction. It is concluded that the cascade-evaporation model gives a correct qualitative, and in some cases a quantitative, description of the nuclear interaction process in the 20 to 80 MeV incident particle energy range, but that it is not in a position to account for some details, such, for example, as (p,n) exchange scattering, fluctuations of the total interaction cross section, and quasifree scattering with subsequent emission of one or two neutrons. The model could be improved by introducing a diffuse nuclear boundary. Orig. art. has: 3 figures.

SUB CODE: 20

SUBM DATE: 00

ORIG. REF: 003 OTH REF: 005

Card 2/2 *LL*

L 41289-66 EWT(m)/EWP(f)/ETI LH(c) JD/JG

ACC NR: AP6019612 (A,N)

SOURCE CODE: UR/0048/66/030/002/0232/0234

AUTHOR: Barashenkov, V.S.; Mal'tsev, V.M.; Toneyev, V.D.

ORG: Theoretical Physics Laboratory, Joint Institute for Nuclear Research Labor-
atoriya teoreticheskoy fiziki Ob'yedinennogo instituta yadernykh issledovaniy))

TITLE: Nuclear reactions on Ir, Ta, and Er, induced by protons with energies up to
85 MeV /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear
Structure, held at Minsk, 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 232-234

TOPIC TAGS: nuclear reaction, compound nucleus, cascade, reaction mechanism

ABSTRACT: Monte Carlo calculations of excitation functions for (p, xn) reactions
($x = 1, 2, 3, \dots$) were performed under the following two assumptions concerning the
reaction mechanism: 1) the target nucleus is excited by capture of the incident
proton with formation of a compound nucleus; and 2) collision of the primary proton
with the target nucleus gives rise to an intranuclear cascade, after which the
nucleus is left in an excited state. It was assumed in both cases that de-exci-
tation is realized by evaporation of nucleons. The calculated excitation curves
were compared with the experimental data of L. Yaffe and collaborators (Canad. J.
Chem. 41, 2533, 2544, 2576 (1963)) on the Ir, Ta, and Er reactions at proton energies
from 8 to 85 MeV. Comparison of the calculations with the experimental data for the

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L 41298-66

ACC NR: AP6019626

lowering of the Coulomb barrier in excited nuclei, and by a more thorough treatment of the competition between fission and evaporation. Orig. art. has: 6 figures and 2 tables.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 009 OTH REF: 009

Card 3/3

44708-44
ACC NR: AP6019616

tributions of the charged particles ejected by 460 and 660 MeV protons; the energy distributions of protons and α particles accompanying fission induced by 660 MeV protons; the distributions of fissions induced by 140, 460, and 660 MeV protons with respect to the number of accompanying charged particles; the number of moderate-energy ejected neutrons as a function of the proton energy; and the cross sections for producing different fragments as functions of the mass number of the fragment. In general, rather good agreement was obtained between theory and experiment. The agreement was better, and in some cases much better, when the $A/10 \text{ MeV}^{-1}$ level spacing was used in the calculations than when the $A/20 \text{ MeV}^{-1}$ spacing was used. The ratio of the fission-to the evaporation-width given as a function of energy by the statistical theory of I. Dostrovsky, Z. Fraenkel, and P. Rabinowitz (Proc. of the Second United Nations International Confer. on Peaceful Uses of Atomic Energy, Geneva, v. 15, p. 1615 (1958)) was used to calculate the yields of Np, U, Pa, Th, and As fragments as functions of their mass numbers. The calculations for Pa, Th, and As were in agreement with the experimental data, but the calculated yields of Np and U fragments were considerably higher than the experimental yields. The discrepancy is ascribed in part to neglect of quasi-elastic scattering in the calculations, and in part to the fact that the experimental cross sections of M. Linder and R. N. Osborne (Phys. Rev., 103, 378 (1956)) are too low. It is concluded that the cascade-evaporation model and the statistical theory of heavy nucleus fission are in good agreement with experiment in the energy range from 100 to 660 MeV, but that there are discrepancies regarding the yields of certain fragments that can be removed only by taking into account quasi-elastic scattering and the

2/3
Cord

L 41254-46 EXT(1)/T/ENP(1)/ETI LJP(1) JD/NW/26

ACC NR: AP0019626

(A, N)

SOURCE CODE: UR/0048/66/030/002/0322/0327

AUTHOR: Barashenkov, V.S.; Mal'tsev, V.M.; Toneyev, V.D.

ORG: Theoretical Physics Laboratory, Joint Institute for Nuclear Research (Laboratoriya teoreticheskoy fiziki Ob'yedinennogo instituta yadernykh issledovaniy)

TITLE: Interaction of fast protons with heavy nuclei /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 322-327

TOPIC TAGS: nuclear reaction, cascade, evaporation, nuclear fission, proton bombardment, uranium, nuclear model

ABSTRACT: The authors have employed a computer to perform Monte Carlo calculations of the interaction of 10 to 700 MeV protons with U^{238} nuclei on the basis of the cascade-evaporation model, and have compared the results with experimental data from different sources. U^{238} was chosen for the calculations because ample experimental data are available for it. For the calculations it was assumed that the nuclear radius is $1.3A^{1/3} \times 10^{-13}$ cm, and calculations were performed for the two values $A/10$ and $A/20$. MeV⁻¹ for the level density. Comparisons of the calculated results with experimental data are presented for the following features of the process: the fission and total inelastic interaction cross sections as functions of proton energy; the angular dis-

Cord 1/3

GRAMENITSKIY, I.M.; KANAREK, T.; MALITSEV, V.M.; PROKESH, A.; TIKHOMOVA, L.A.

Quasi-elastic π^+p -interaction at an energy of 9Bev. IAd. fiz. 2 no.1:
113-121 Ja '65. (MIRA 18:7)

1. Ob"yedinennyy Institut yadernykh issledovaniy.

AFANAS'YEVA, R.V.; LOZHKIN, O.V.; MAL'TSEV, V.M.; YAKOVLEV, Yu.P.

Li^8 production in the fission of C^{12} nuclei by high-energy protons.
IAD. fiz. 1 no.1:76-79 Jan '65. (MIRA 18:7)

1. Ob"yedinennyy institut yadernykh issledovaniy.

FORST, I.E.; VOIPIYANSKIY, A.Z.; MALITSKIY, V.M.; DOKUCHAY, V.S.
SELENEV, V.S.

Sapphire light conductor for measurement of energy radiated
from the flame torch zone toward the burning surface of a powder
charge. Zhur. Fiz. Khim. 59:5128-5130, 1983. 1p. U.S.

(MIRA 1818)

1. Institut khimicheskoy fiziki AN USSR.

L 44176-65

ACCESSION NR: AP5011470

ASSOCIATION: Akademiya nauk SSSR. Institut khimicheskoy fiziki (Academy of
Sciences, SSSR. Institute of Chemical Physics)

SUBMITTED: 23Jul63

ENCL: 00

SUB CODE: FP,TD

NO REF SOV: 004

OTHER: 000

ATD PRESS: 3241

Card

2/2

L 44176-65 EPP(c)/EPR/EWA(b)-2/EWA(j)/EWP(j)/EWA(c)/EWT(m)/T Pc-4, Pr-4/
 P-4 RPL WW/JW/JWD/RM

ACCESSION NR: AP5011470

UR/0076/65/039/004/0978/0979

AUTHOR: Pokhil, P. F.; Mal'tsev, V. M.

TITLE: Temperature of burning of explosives ⁶

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 4, 1965, 978-979

TOPIC TAGS: flame temperature, explosive, PETN, hexogen, tetryl, pressure bomb

ABSTRACT: The temperatures of burning of PETN, hexogen, and tetryl were measured at high pressures (20—100 atm) in a constant-pressure bomb in a nitrogen atmosphere. A previously described experimental unit was used (P. F. Pokhil, V. M. Mal'tsev, and L. I. Gal'perin, Zh. fiz. khimii, v. 34, 1131, 1960). The flame absorption abilities of PETN and hexogen were in the range of 0.1—0.3 and that of tetryl in the range of 0.8—0.9. In all cases, the absorption ability increased along the flame height towards the charge surface. The temperature of the flames of PETN and hexogen in the pressure range of 20—60 atm increased rapidly; in the pressure range of 60—100 atm the temperature rose slowly to a maximum of 3250 and 3150K, respectively. In this pressure range (20—100 atm), the tetryl flame temperature changed only slightly and was 2600K. In all cases the measured temperatures were lower than calculated. At high pressures, the explosives were partially dispersed at the surface of the liquid layer of the charges. Orig. art. has: 1 figure.

Card 1/2

[PS]

L 36301-65

ACCESSION NR: AP5008920

ENCLOSURE: 01

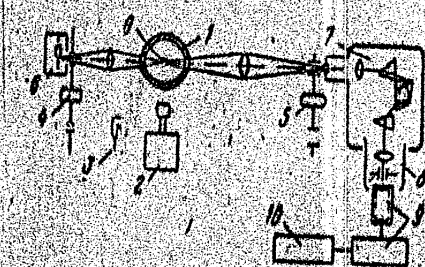


Fig. 1. Diagram of apparatus for measuring temperature nonuniformity in the flame

Card 3/3

JO

L 36301-65

ACCESSION NR: AP5008920

of the temperature nonuniformity along the height of the flame decreased as it neared the maximum temperature zone. The temperature nonuniformities may be caused by physical and chemical nonuniformities of the fuel, by large particles entering the flame from the three-phase dispersed system (solid-liquid-gas) formed on the charge surface, and by turbulence in the flow. Orig. art. has: 1 figure. [PS]

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Institute of Chemical Physics, Academy of Sciences, SSSR)

SUBMITTED: 23Jul63

ENCL: 01

SUB CODE: FP

NO REF SOV: 003

OTHER: 000

ATD PRESS: 3220

Card 2/3

L 36301-65 EWT(d)/EWT(1)/EPF(c)/EPF(n)-2/EWA(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1)
 PF-4/Pr-4/Pu-4 IJP(a) WW

ACCESSION NR: AP5008920

8/0076/65/039/003/0788/0789

AUTHOR: Pokhil, P. F. (Moscow); Mal'tsev, V. M. (Moscow); Seleznev, V. A. (Moscow)

TITLE: Temperature nonuniformities in the flame of condensed systems

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 3, 1965, 788-789

TOPIC TAGS: temperature measurement, spectral brightness method, flame temperature, gun powder

ABSTRACT: A spectral brightness method is described for measuring temperature nonuniformity in the flame of condensed systems (gun powder) in the temperature range of 1300--3500K. The proposed method is based on the measurement of the absorption of light by the flame in a special apparatus. The apparatus (see Fig. 1 of the Enclosure) consists of a high-pressure (150 atm) bomb, 1; a motion picture camera, 2; a tungsten-band lamp for calibrating the optical system, 3; optical obturators, 4 and 5; a xenon lamp, 6; a spectrograph, 7; a photoelectric unit, 8; an electronic unit, 9; and an oscillograph, 10. Experiments with the gun powder flame showed that along the flame cross section the temperature is constant. The frequency of the flame temperature nonuniformity determined for the ballistic powder under certain conditions by this method was about 30 msec. The amplitude

Cont. 1/3

L 41017-65

ACCESSION NR: AP5007712

1963). The optical characteristics of the neutron were determined as follows: the radius $R = 1.08 \cdot 10^{-13}$ cm, the absorption coefficient $K = 0.58 \cdot 10^{-13}$ cm⁻¹. On the basis of one case of π^- -n scattering into the backward half-sphere of the laboratory system, the π^- -n cross section for backward scattering was estimated to be $\sigma_{\pi^-n}(>90^\circ) = 0.020$ mb. "The authors thank L. I. Maslov, I. A. Mirolyubov, N. K. Smirnov and A. G. Chekmeney for the scanning and measurements, N. F. Markov and V. I. Kochlin for their help during computer calculations, and M. I. Podgoretskiy for useful discussions." Orig. art. has: 10 formulas, 5 figures, and 1 table.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: 25 Jul 64

ENCL: 00

SUB CODE: NP

NO REF SOV: 003

OTHER: 007

Card 2/2

L 41017-65 EWT(m) Feb DIAAP

ACCESSION NR: A75007712

8/0367/65/001/001/0113/0121

AUTHOR: Gramenitskiy, I. M.; Kanarek, T.; Mal'tsev, V. M.; Prokesh, A.; Tikhonova, L. A.

TITLE: Quasi-elastic π^- -n interactions at 9 GeV

SOURCE: Yadernaya fizika, v. 1, no. 1, 1965, 113-121

TOPIC TAGS: quasielastic scattering, differential pion nucleon scattering, optical neutron coefficient, pion neutron background scattering, π meson nucleon interaction, backward scattering

ABSTRACT: Quasi-elastic π^- -n scattering at the π^- -meson momentum of 9 GeV/c was studied in a 24-liter xenon bubble chamber (where "quasi-elastic" means elastic scattering on a nucleon bound in a nucleus). For scattering angles larger than $\theta_{\text{lab}} 22^\circ$ the π^- -n cross section is equal to $\sigma_{\pi n}(\geq 2^\circ) = 2.31 \pm 0.26$ mb; the total π^- -n elastic cross section is equal to $\sigma_{\pi n} = 4.9 \pm 0.5$ mb. Within the experimental errors the π^- -n scattering differential cross section is equal to the π^+ -p differential cross section at 8.8 GeV/c (K. J. Foley, S. J. Lindenbaum, W. A. Love, S. Ozaki, J. J. Russell, L. C. L. Yuan, Phys. Rev. Lett., 11, 425,

Card 1/2

L 15028-65

ACCESSION NR: AP4049608

that the absorption decreased with increasing wavelength and increased with increasing pressure. The reflection increased by about 7--10% with increasing pressure. The true temperature of the flame at 40 atm was calculated as 2350C from the brightness temperature and the absorption and reflection capacities. Temperatures close to this value were also obtained by using different spectral regions. It is concluded that optical methods may be used for temperature measurements of powder flames at elevated pressure. Orig. art. has: 1 figure and 2 formulas.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 20 Jun 63

ENCL: 00

SUB CODE: WA, OP

NO REF SOV: 002

OTHER: 000

ATD PRESS: 3141

Card 2/2

L 16028-65 EPA/EWT(1)/EPA(a)-2/EWT(m)/EPF(c)/EPR Paa-h/Ps-h/Ps-h/Pt-10 ASD(f)-2/
SSD/AFWL/AEDG(b)/AS(mp)-2/AFMDC/AFETR/AFTG(p) NW/JW/JWD
ACCESSION NR: AP4049608 S/0076/64/038/011/2666/2668

AUTHOR: Mal'tsev, V. M.; Logachev, V. S.; Seleznev, V. A.

TITLE: Allowing for some optical properties of ballistic powder flames in temperature measurements

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 11, 1964, 2666-2668

TOPIC TAGS: explosive, combustion, flame temperature, temperature measurement, optical temperature measurement

ABSTRACT: The optical temperature measurement of the flame of ballistic powder has been studied in a constant pressure bomb by determining the emission spectrum (3800—7000 Å), the brightness temperature, and the reflection and absorption capacities of the flame. Sharply delineated spectral lines were observed at a pressure of 5 atm, but with increasing pressure (up to 80 atm) the spectrum tended to become continuous. The occurrence of a continuous spectrum at elevated pressures is explained by changes in the Boltzmann energy distribution, the interaction of atoms and molecules causing a widening of energy bands, and the presence of soot particles. The experiments showed

Card 1/2

BARASHENKOV, V.S.; BOYADZHIYEV, S.V.; KULYUKINA, I.A.; MAIRANOV, V.M.

Cascade interactions between particles and nuclei in the α - β - γ energy region. Atom. energ. 16 no.6:515-517 Dec '64.

(MIRA 17:7)

BELYAKOV, V.A.; BOYADZHIYEV, A.; VIRYASOV, N.M.; MAL'TSEV, V.M.

[Mechanism of particle production and interaction in the
carbon nucleus] Mekhanizm obrazovaniia i vzaimodeistviia
chastits v iadre ugleroda. Dubna, Ob"edinennyi in-t iadern-
nykh issl. 1963. 23 p. (MIRA 17:7)

BARASHENKOV, V.S.; MAL'TSEV, V.M.; PATERA, I.

[Inelastic particle interactions at high energies] Neuprugie vzaimodeistviia chastits pri bol'shikh energiakh. Dubna, Ob"edinennyi in-t iadernykh issl., 1964. 134 p.
(MIRA 17:4)

1. Institut fiziki, Praga (for Patera).

AFANAS'YEVA, R.V.; LOZHKIN, O.V.; MAL'TSEV, V.M.; YAKOVLEV, Yu.P.

[Production of Li^8 in the fission of Cl^{32} nuclei by high-energy protons] Obrazovanie Li^8 v rasshchepleniakh iader Cl^{32} protonami vysokoi energii. Dubna, Ob"edinennyi in-t iadernykh issl., 1964. 8 p. (MIRA 17:5)

POKHIL, P.F.; MAL'TSEV, V.M.

Mechanism underlying the burning of powder. Inzh.-fiz. zhur. 6
no.6:94-99 Je '63. (MIRA 16:6)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.
(Gunpowder, Smokeless) (Combustion)

AID Nr. 989-13 13 June

EVALUATION OF THE THERMAL EFFECT [Cont'd]

S/207/63/000/002/024/025

the flame were also made with hexogen and the results plotted for 20, 40, and 60 atm. The plot shows that two different flame zones exist: 1) a zone close to the surface in which absorption decreases rapidly with increasing distance from the surface explained by the fact that the concentration of the dispersed aerosol particles is highest at the surface and, owing to evaporation, decreases rapidly with distance from the surface; and 2) a zone in which absorption approaches a minimum value with increasing distance from the surface. Absorption in the second zone increases with increasing pressure, and as the pressure increases the temperature profile becomes steeper and the maximum flame temperature is shifted toward the surface. The results for hexogen show that about 15 kcal/g (about 10% of the total heat transferred to the explosive) is evolved in the condensed phase. At medium and high pressures the initial stage in the combustion of hexogen takes place in the condensed phase. Consequently, heating of hexogen during combustion takes place by heat conduction from the gas phase as well as by heat evolution in the condensed phase. [PV]

Card 2/2

AID Nr. 989-13 13 June

EVALUATION OF THE THERMAL EFFECT IN THE INITIAL COMBUSTION STAGE OF EXPLOSIVES (USSR)

Maltsev, V. M., and P. F. Pokhil. Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, Mar-Apr 1963, 173-174. S/207/63/000/002/024/025

The effect of the condensed phase reaction taking place during combustion of explosives was studied. The heat evolved during the condensed phase reaction (Q_1) was calculated at different pressures by the formula $Q_1 = Q_3 - Q_2$, where Q_2 equals the amount of heat transferred from the smoke-gas zone to the explosive, and Q_3 equals the total heat transferred to the explosive during combustion. The values of Q_2 and Q_3 were experimentally determined by measuring the surface temperature of the explosive and determining the axial temperature profile in the flame. Measurements with nitroglycerine were made at 22 to 66 atm; Q_1 , Q_2 , Q_3 , Q_4 (heat evolved in the gas phase), and Q (total reaction heat) were tabulated. The table shows that Q_1 increases with increasing pressures while the amount of smoke generated by dispersion of the condensed phase decreases. Measurements of the absorption and temperature profiles of

Card 1/2

ACCESSION NR: AP3003052

SUBMITTED: 02Feb62 DATE ACQ: 22Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 006

OTHER 000

Card 3/3

ACCESSION NR: AP3003052

temperature reached a maximum. Only two zones were observed for hexogen; absorption decreased in the first and remained constant in the second. The results indicate that the condensed phase is dispersed during combustion at elevated pressures. In the combustion of the powder, the combustion efficiency and temperature increased continuously with pressure up to a maximum of 2350°K at $(490--539) \cdot 10^4$ newton/m². The length of the combustion zone decreased with increasing pressure. The temperature profile of the powder flame was S-shaped. Determination of heat release showed that in the condensed phase it increases with increasing pressure. The amount of heat released in the condensed phase and its role in heating of the charge, compared to the overall heat release, are greater for nitroglycerine powder than for hexogen. Orig. art. has: 2 figures.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics AN SSSR)

Card 2/3

ACCESSION NR: AP3003052

S/0170/63/000/006/0094/0099

AUTHOR: Pokhil, P. F.; Mal'tsev, V. M.

TITLE: Combustion mechanism of powders

SOURCE: Inzhenerno-fizicheskiy zhurnal, no. 6, 1963, 94-99

TOPIC TAGS: combustion mechanism, nitroglycerine powder, hexogen, temperature measurement, infrared pyrometer

ABSTRACT: The distribution of light absorption and temperature along the axis of flames of nitroglycerine powder (ballistite H) and hexogen at pressures of $(220.5--440.1) \cdot 10^4$ newton/m² were measured in a constant-pressure bomb by an infrared pyrometer originally developed for temperature measurements at 600--3500°K. Three distinct zones were distinguished on the curves of temperature and absorption versus distance for the powder. Absorption decreased to a minimum in the first zone and increased in the second. In the third zone the

Card 1/3

BARASHENKO, V.S.; MAL'TSEV, V.M.

[Some regularities in a system of strange resonances] O ne-
kotorykh zakonomernostiakh v sisteme strannykh rezonansov.
Dubna, Ob"edinennyi in-t iadernykh issledovani, 1963. 3 p.
(MIRA 16:6)

(Mesons) (Quantum theory)

ANFILOGOV, A.D.; BELOSTOTSKIY, N.B.; KOVATSENKO, Ye.G.; KOZYREV, Yu.M.;
KURACHENKO, Yu.P.; MAL'TSEV, V.M.

Measuring equipment in the service of technological development.
Izm.tekh. no.12:48-50 D '62. (MIRA 15:12)
(Measuring instruments)

Mechanism of interaction between ...

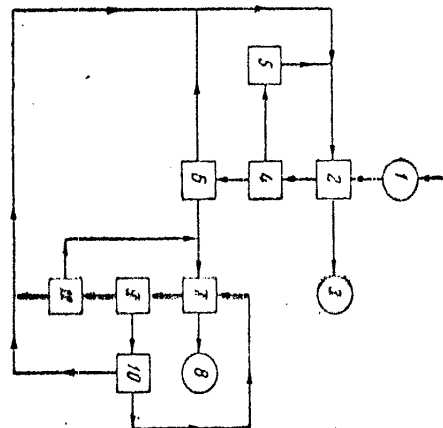
S/048/62/026/008/016/023
B104/B102

same is assumed to be true of higher energies. There are 7 figures and 3 tables.

ASSOCIATION: Laboratoriya teoreticheskoy fiziki Ob'yedinennogo instituta yadernykh issledovaniy (Laboratory of Theoretical Physics of the Joint Institute of Nuclear Research)

Fig. 1. Calculation diagram.

Legend: (1) Entry of particle into the nucleus, (2) range of the nucleon, (3) characteristics of outgoing nucleons, (4) NN interaction, (5) elastic interaction, (6) inelastic interaction, (7) π meson range, (8) characteristics of π mesons, (9) form of π N interaction, (10) elastic interaction, (11) inelastic interaction.



Card 2/2

40102
S/048/62/026/008/018/028
B104/B102

24.6700

AUTHORS: Barashenkov, V. S., and Mal'tsev, V. M.
TITLE: Mechanism of interaction between fast particles and nuclei
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26,
no. 8, 1962, 1069 - 1074

TEXT: Cascades produced by interaction of 9 Bev protons with nuclei are calculated. To compare the results with experimental data the calculations are made for light and heavy photoemulsion nuclei (N_{14}^{14} and Nb_{41}^{94}). After interaction the particles are classified according to their energy as s-particles (shower particles), g-particles (cascade particles, gray tracks) and b-particles (particles with black tracks). The energy range for the NN interaction was divided into five intervals (9 - 4.5, 4.5 - 1.5, 1.5 - 1, 1 - 0.5, < 0.5 Bev) and that of the πN interaction into four (8 - 3, 3 - 1.5, 1.5 - 0.5, < 0.5 Bev). The calculation was made following the scheme shown in Fig. 1. The results showed good agreement with experimental data. The interaction in the range ≤ 9 Bev is an intranuclear cascade and the

Card 1/2

S/089/62/013/003/001/007
B102/B104

Particle production at very ...

proton beam, $b = 1 - (\mu/m)^2$, μ and m are the muon and pion mass,

$\bar{n}_\nu(T) = \bar{n}_{\pi^\pm}(T) \simeq \bar{n}_\gamma(T)$, and $\bar{n}_\nu(T) = 2\pi \int_0^\pi V(0, \theta, \infty, T) \sin \theta d\theta$. (c) muons.

The expression

$$M(K; 0; L; T) = \frac{\bar{n}_\mu(T)}{b} \int_K^{P_{\text{max}}(T)} dq \int_a^{\left(\frac{m}{\mu}\right)^2 q} \Pi(p; 0; T) \left[1 - \exp\left(-\frac{L}{7.68} \frac{m}{p}\right) \right] \frac{dp}{p}, \quad (11)$$

is obtained, where $\bar{n}_\mu(T) = \bar{n}_{\pi^\pm}(T)$ is the mean number of muons produced per inelastic (NN) collision. $\bar{n}_\mu(T) = 2\pi \int_0^\pi M(0, \theta, \infty, T) \sin \theta d\theta$. In no case was the background intensity taken into account. There are 6 figures and 1 table.

SUBMITTED: October 14, 1961

Card 3/3

S/089/62/013/003/001/007
B102/B104

Particle production at very ...

proton energies, the number of γ -quanta of energy greater than a given value K emitted at an angle θ is

$$\Gamma(K, \theta, T) = 2\bar{n}_\gamma(T) \int_K^{P_{\max}(T)} dq \int_q^{P_{\max}(T)} \Pi(p, \theta, T) \frac{dp}{p}, \text{ where } \Pi \text{ is the } \pi^0$$

momentum distribution and $\bar{n}_\gamma(T) = 2\pi \int_0^\pi \Gamma(0, \theta, T) \sin\theta d\theta$. For very large energies, the solid angle in which the quanta are emitted is very small ($\theta \simeq 0^\circ$). (b) neutrinos. The total number of neutrinos having $E > K$ is given by the analogous expression

$$V(K; \theta; L; T) = \frac{\bar{n}_\nu(T)}{b} \int_K^{P_{\max}(T)} dq \int_{q/b}^{P_{\max}(T)} H(p; \theta; T) \left[1 - \exp\left(-\frac{L}{7.68} \frac{m}{p}\right) \right] \frac{dp}{p}, \quad (8).$$

$L[m]$ is the distance from the target, θ the angle measured from the
Card 2/3

40262
S/089/62/013/003/001/007
B102/B104

44 6700.

AUTHORS:

Barashenkov, V. S., Mal'tsev, V. M.

TITLE:

Particle production at very high energies

PERIODICAL:

Atomnaya energiya, v. 13, no. 3, 1962, 221-227

TEXT: The numbers of particles produced in inelastic (NN) and (π N) collisions in the energy range 1-30³ BeV were estimated, in connection with the design of 10 and 100 BeV accelerators. The following conclusions were reached with respect to the multiplicity of particle production in such collisions: (1) the heavy-particle production probability amounts to about 25% of the pion production probability. (2) When the energy $T \gg 1$ BeV, the total number of particles produced remains nearly constant whatever the type of particles colliding with the target nucleons. The pions produced in (pp) and (pn) collisions decay partly in the immediate vicinity of the target, giving gamma quanta (π^0 , $\tau \approx 10^{-16}$ sec), and partly at a distance of 10-100 m, giving neutrinos and muons (π^\pm , $\tau \approx 10^{-8}$ sec): hence the intensities of the γ , ν and μ beams are studied as functions of the energy and of distance from the target. (a) γ -quanta. At high bombarding

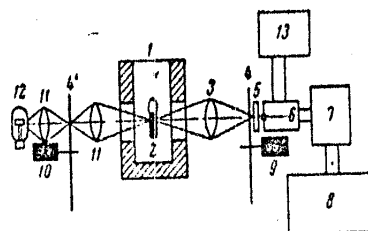
Card 1/3

Apparatus for measuring the temperature... 24023
S/076/61/035/005/007/008
B101/B218

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Academy of Sciences, USSR, Institute of Chemical Physics)

SUBMITTED: September 24, 1960

Fig. 1: Schematic representation of the apparatus (explanation in the text).



24023
S/076/61/035/005/007/008
B101/B218

Apparatus for measuring the temperature...

The flame is directed through a glass window and by a condenser lens to the surface of the photo which, at every instant, cuts out a 10 μ wide section along the flame from bottom to top. The light from the entire surface of the photo and active cell is lost for uniform sensitivity of the PbS layer as with a very reflective. The choppers allow for amplification of the carrier frequency to 5500 Hz. The photoconductive cell is reached by modulated light whose amplitude corresponds to the fluxes from a certain small section of the flame surface at every instant. A germanium light filter and an MCW 3 (ISE) filter served as light filters. Assuming a linear dependence of the photocurrent on the light, $I_{ph} \propto (1/T)$

(I_{ph} - photocurrent, T - temperature of the calibrated source of light) was determined. The wavelength λ_{eff} determined according to Wien's law, amounted to 1.5 μ. The apparatus was calibrated by a graphite emitter (black body). A variac of the type 28WM (28IM) was used as amplifier. The temperature profile was measured by three logs: for 700-950°C, 900-1250°C, and 1200-1600°C. The experimental data agreed with the theoretical concept of the mechanism of the burning of gunpowder. There are 2 figures and 7 Soviet file references.

Card 2/3

24023
S/006/61/035/005/001/008
B101/B210

11.7200
AUTHORS:

Pokl E. P., Matveev, V. M., and Lukashenya, G. V. (Moscow)

TITLE: Apparatus for measuring the temperature profile of the tongue of a gas-powder flame

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 5, 1961, 1142-1143

TEXT: The authors describe an apparatus for measuring absorption along the tongue of a flame in a certain spectral region for the purpose of determining the actual temperature of the flame. Fig. 1 shows the block diagram. 1 is the torch in which the powder is burned. It withstands pressures of up to 150 atm. 3 is the optical system; 4 and 4' are rotating choppers for modulation of the light, which are operated by synchronous motors of the type A-03M (SD-09M); 9, 10; 5 are filters; 6 is a preamplifier with a PbS photoconductive cell, 7 an amplifier, 8 a loop oscil scope of the type MPO-2 (MPO-2), 11 an optical system for determining the absorption along the height of the tongue of the flame, 12 a calibrated tungsten lamp, and 13 a thermostat for PbS. The powder is put into the bomb filled with nitrogen and inflated at one end by means of an electric spiral. The radiation of

Page 1/5

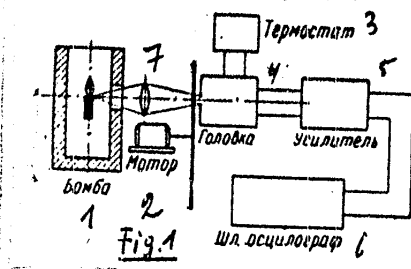
BARASHENKOV, V.S.; MAL'TSEV, V.M.; MIKHUL, E.K.

Mechanism of the interaction of fast nucleons with nuclei. Atom.
energ. 10 no.2:156-158 F '61. (MIRA 14:1)
(Nucleons) (Collisions (Nuclear physics))
(Nuclei, Atomic)

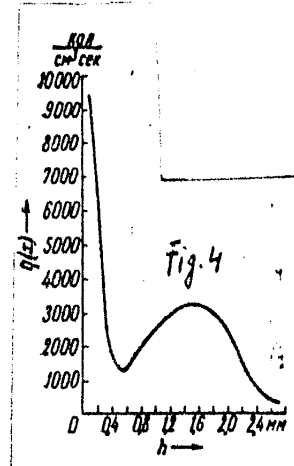
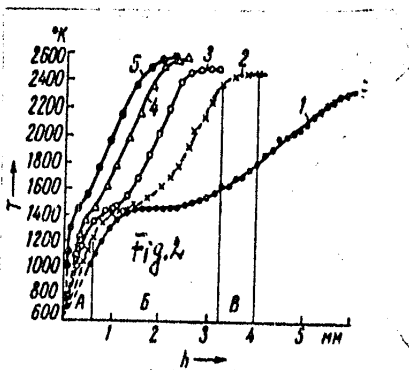
BARASHENKOV, V.S.; MAL'TSEV, V.M.

[Generation of deuterons in the interaction of fast nucleons
with nuclei] Obrazovanie deitonov pri vzaimodeistvii bystrykh
nuklonov s iadrami. Dubna, Ob"edinennyi in-t iadernykh issl.
1961. 8 p. (MIRA 15:1)
(Deuterons) (Nuclear reactions)

09020



S/020/60/135/004/034/037
B016/B066



Card 4/4

Burning of Ballistic Powders

S/020/60/135/004/034/037
B016/B066

conductivity ($\sim 5 \cdot 10^{-4}$ cal/cm.sec.degree); u - rate of the powder combustion; ρ - density of the powder (~ 1.6 g/cm³); \bar{c} - mean value of the specific heat capacity of the burning products (~ 0.4 cal/g.degree); $q(x)$ - rate of heat evolution from the chemical reactions. Fig. 4 shows the heat evolution (cal/cm³.sec) as a function of the height h at 60 atm. The authors conclude from the resultant data that for heating the powder mainly this heat is used that is formed by decomposition of the condensed phase, i.e. this heat that forms in the reaction layer of the condensed phase of the powder charge and the heat resulting from the decomposition reactions of the aerosol particles of the smoke. There are 3 figures and 5 references: 4 Soviet and 1 US.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: June 23, 1960, by V. N. Kondrat'yev, Academician

SUBMITTED: April 2, 1960

Card 3/4

Burning of Ballistic Powders

S/020/60/135/004/034/037
B016/B066

thermostat 3), whose amplitude corresponds to the glowing of a narrow surface section of the flame. Electric signals are transmitted from the receiver via the amplifier 5 to the loops of the oscillograph 6, of the МПО-2 (MPO-2) type. PbS was used as a photoresistance. The effective wave length was 1.5μ . A germanium filter was impervious to waves with a length of less than 1.3μ . Samples of nitroglycerin powder, 7 mm diameter, were studied in nitrogen atmosphere. On the basis of the shape of the curves in Fig. 2, the authors divided the flame in 3 height zones: A, B, and V. Fig. 2 shows the temperature T as a function of pressure; 1:20 atm, 2:30 atm, 3:40 atm, 4:50 atm, and 5:60 atm in heights (h) up to 6 mm. The authors concluded from these data that the width of the zone A decreases with increasing pressure, whereas the temperature of the flame in it increases. The temperature reaches in the zone V a maximum at a certain pressure and remains constant at further pressure increase. The equation for the steady burning process of ballistic powder, which expresses the heat balance in each level of the flame, reads as follows:

$$\lambda \frac{\partial^2 T}{\partial x^2} - \tau \rho u \frac{\partial T}{\partial x} + q(x) = 0 \quad (1), \text{ where } \lambda - \text{coefficient of the heat}$$

11.7200

S/020/60/135/004/034/037
B016/B066

AUTHORS: Pokhil, P. F., Mal'tsev, V. M., and Lukashenya, G. V.

TITLE: Burning of Ballistic Powders

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 4,
pp. 913-916

TEXT: The purpose of the present paper was: a) to devise optical methods of measuring the temperature in the entire height of the powder flame, and b) to study the dependence of the temperature profile on the pressure. Fig. 1 shows a block diagram of the applied device by means of which reliable values are obtained above 600-700°C. The construction of the bomb 1 was described in a previous paper (Ref. 3) A radiation flux passes a quartz window and is concentrated by the quartz lens 7 upon the slit which cuts out continuously a narrow (40μ) surface section of the flame in true scale. Both a quick and a slow change in temperature is reproduced by means of a current amplifier with carrier frequency (5 kc/sec), in that the radiation flux is subjected to an adequate obturation. In this way a moderated radiation flux gets into the radiation receiver 4 (with

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89028

On the Combustion of a Smoke - Gas Mixture
of Gunpowder

S/020/60/132/03/44/066
B011/B011

($\approx 1.2 - 2.7$), κ is the absorption index ($\approx 10^{-3}$ to 10^{-4}). Hence, q can be computed, if α is known. Figs. 1 and 2 show the determination results of a_λ depending on the height of the tongue of flame in dependence on the wavelength and on pressure. The development of the reaction in the smoke-gas mixture is dependent on the pressure of the surrounding atmosphere. The aerosol particles of the smoke move with the gaseous powder products, react chemically and become smaller. Fig. 2 shows q depending on the height of the tongue of flame of gunpowder at different pressures. It proceeds therefrom that q rapidly drops with the distance from the powder surface. It is evident that the principal mass of smoke particles is dispersed in the vicinity of the powder surface. There are 2 figures and 3 Soviet references.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: January 9, 1960, by V. N. Kondrat'yev, Academician

SUBMITTED: December 31, 1959

Card 3/3

On the Combustion of a Smoke - Gas Mixture
of Gunpowder

S/020/60/132/03/44/066
B011/B011

absorbability assumes a constant value); III. the zone of maximum temperature. A decrease in the absorbability of the flame with rising wavelength as well as a diminution in the geometric dimensions with rising pressure are characteristic of all of the three zones. The flame absorbability α_λ

is determined from formula: $\alpha_\lambda = \frac{A_k^0 - A_k'}{A_k^0}$, where A_k' is the amplitude of

the light current emanating from the xenon bulb in the presence of the flame and A_k^0 is the calibration amplitude of the light current, if there is no flame on the way of the light current to the collimator slit. Depending on the height of the tongue of flame α , the weight concentration of the smoke - gas mixture is related to α_λ in the following manner:

$\alpha = \frac{\ln(1 - \alpha_\lambda)}{l}$, where l is the length of the light ray path. The authors

derive a formula for the value of the aerosol particles of mixture K_λ and

prove that $\alpha = \frac{B}{\rho_n} q$, where q denotes the weight concentration and ρ_n

is the gunpowder density. $B = \frac{36\pi n^2}{(m^2 + 2)\lambda}$, where n is the refractive index

S/020/60/132/03/44/066
B011/B011

11.8000
11.1000

AUTHORS: Mal'tsev, V. M., Pokhil, P. F.
TITLE: On the Combustion of a Smoke - Gas Mixture of Gunpowder
PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 3,
pp. 646-648

TEXT: The authors of the present paper deal with the physical properties of the gunpowder flame. The experimental part of the investigation was conducted with a system devised at the authors' institute (Ref. 1). The authors measured the absorbability of the flame, in order to estimate the weight concentration of the smoke - gas mixture. Absorbability was examined at every 0.1 mm of the flame height at the following wavelengths: 4950, 6700, and 7710 Å (interference filter). A sample 7 mm in diameter of nitroglycerin powder with an armored surface was placed into a cylinder at constant pressure and ignited from the front. The flame was transluclcd by a strong xenon bulb. The authors subdivide the flame at 20-50 atm into 3 vertical zones: I. from the powder surface to point K₀ (the point K₀ has a minimum in absorbability); II. from K₀ to K₁ (beginning from K₁ the

Card 1/3

88437

Secondary Processes in the Pion Production
on Nuclei

S/056/60/039/006/027/063
B006/B056

with carbon nuclei $Y^+/Y^0 = 1.6$ and $Y^+/Y^- = 6.1 \pm 0.6$ (experimentally: $Y^+/Y^- = 6.2 \pm 0.5$). The scattering of the produced pions from the nucleons of a nucleus leads to a decrease of the asymmetry of the pion angular distribution with respect to 90° in the laboratory system - thus, an increase of the asymmetry of pion angular distribution $f(\theta)$ was bound to be observed in the c.m.s. A graphical investigation of the function $\eta = [f(180^\circ) - f(0^\circ)] / f(90^\circ)$ shows that the increase of the asymmetry as a result of pion scattering attains about 30% in π^0 production; for carbon, $\eta = 80 - 100\%$ has been determined. Thus, pion scattering is by no means negligible when calculating the angular distribution also for light nuclei. In the case of heavy nuclei scattering must play an even more important part. The authors thank B. Pontekorvo for discussions. V. G. Vovchenko, G. Gel'fer, A. S. Kuznetsov, M. G. Meshcheryakov, V. Svyatkovskiy, and L. S. Azhgirey are mentioned. There are 3 figures and 10 references: 7 Soviet, 1 US, 1 Dutch, and 1 CERN.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint
Institute of Nuclear Research)

SUBMITTED: July 30, 1960

Card 2/2

88437

S/056/60/039/006/027/063
B006/B056

24.6900

AUTHORS: Mal'tsev, V. M., Prokoshkin, Yu. D.

TITLE: Secondary Processes in the Pion Production on Nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 6(12), pp. 1625 - 1629

TEXT: According to considerations discussed in the introduction, the ratio of the integral yields of π^+ and π^- mesons, denoted by Y^+/Y^- , must, in collisions with protons with composite nuclei (e.g., in the pC reaction), be smaller than in collisions with free nucleons (e.g., pd). The authors wanted to check this assumption quantitatively by comparing theoretical results obtained by the Monte-Carlo method with experimental data. The C_6^{12} nucleus served as a target, and 660-Mev protons as

bombarding particles. The calculations were carried out by a "Ural" electronic computer. The probabilities of the various processes were taken from experimental investigations. In collisions of 660-Mev protons with free protons and neutrons, the following pion production ratios are found to be valid: $Y^+/Y^0 = 1.70 \pm 0.12$; $Y^+/Y^- = 9.0 \pm 0.8$; in collisions

Card 1/2

BARASHENKOV, V.S.; VAN-PEY [Wang-P'ei]; MAL'TSEV, V.M.

Pulse distribution of particles generated in $E \approx 9$ Bev. inelastic
NN-collisions. Zhur.eksp.i teor.fiz. 38 no.2:650-652 F '60.
(MIRA 14:5)

1. Ob'yedinennyy institut yadernykh issledovaniy.
(Collisions (Nuclear physics))

A Device for the Determination of the
Temperature From the Height of the Tongue
of a Gunpowder Flame

S/076/60/034/05/31/038
B010/B003

xenon lamp) used to determine the absorptive power of the flame, and an
ФЭУ-42 (FEU-42) photomultiplier to convert the light into electricity.
Besides, the device has a Б-150 (B-150) high-pressure vessel for the
combustion of the sample at 150 atm and an МПО-2 (MPO-2) oscilloscope
for signal recording. The block diagram of the photomultiplier (Fig. 2)
and a description of the operation of the device are given. There are
2 figures and 6 Soviet references. ✓B

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR Moskva
(Institute of Chemical Physics of the Academy of Sciences
of the USSR, Moscow)

SUBMITTED: July 1, 1959

Card 2/2

S/076/60/034/05/3/072
B010/B003

AUTHORS: Pokhil, P. F., Mal'tsev, V. M., Gal'perin, L. N.
TITLE: A Device for the Determination of the Temperature From the
Height of the Tongue of a Gunpowder Flame
PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 5,
pp. 1131-1132

TEXT: A device for measuring the temperature within the range 1,300 -
3,000°C is described, in which the height of the flame tongue of
gunpowder is determined in dependence on pressure. The determination of
the temperature dependence is based on the comparative method of the
blue-red coloring which is applied for flames emitting a continuous
spectrum in the visible. In the device described the absorptive power is
measured along the flame (at certain wavelengths) and, thus, the actual
temperature is determined. Simultaneously, the rate of combustion of the
gunpowder is determined. The device (Fig. 1, block diagram) contains a
collimator, a powerful homogeneous light source (~~СВЛ-1000~~ (SVDSH-1000)),
✓B

Card 1/2

Measurement of the Flame Temperature of Condensed
Systems

SOV/20-127-1-35/65

distance between the hottest flame zone and the powder surface narrows (Fig 3): 6.2 mm at 20 at, 2.7 mm at 50 at . The dependence of the light absorption capacity of the flame on pressure is shown in figure 4. The situation of the pressure-dependant maximum of light permeability over the powder surface is explained by the burning process: (1) formation of a strongly light-absorbing flue gas mixture, (2) decrease in the weight- and particle concentration of the smoke owing to combustion, (3) increase in the concentration of aerosol particles (soot) with rising temperature. There are 4 figures and 6 Soviet references.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR
(Institute of Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: March 10, 1959, by V. N. Kondrat'yev, Academician

SUBMITTED: March 10, 1959

Card 2/2

5(4)

SOV/20-127-1-35/65

AUTHORS:

Gal'perin, L. N., Mal'tsev, V. M., Pokhil, P. F.

TITLE:

Measurement of the Flame Temperature of Condensed Systems
(Izmereniye temperatury plamen kondensirovannykh sistem)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 1, pp 131-134
(USSR)

ABSTRACT:

A method of measuring the temperature is suggested here, which is based on the blue-red ratio (Refs 1-3). The system is depicted in figure 1. The constant light source is given by a xenon lamp SVDSH-1000. The powder sample is ignited electrically in a cylinder under pressure. The light emitted by the xenon lamp is directed through the powder flame and a collimator by means of an optical arrangement; it is then split into two beams in a double prism, the two beams are directed through a red and a blue filter respectively, and the light pulses are intensified by means of a photomultiplier. Experiments were made with nitro glycerin powder under pressures of from 20 to 150 at . Figure 2 shows that in the case of 50 at the flame temperature attains the maximum of 2,200°K, which remains constant with further rising pressure. With rising pressure, however, the

Card 1/2

On the Resonance Interaction of π -Mesons

SOV/56-37-3-55/62

production of strange particles were found (i.e. 3.6%). According to reference 10, however, it appears to be very probable that among the remaining 106 stars there were also such in which, though those strange particles were produced, they were not disintegrated within the chamber and were therefore not recorded. There are 1 table and 11 references, 2 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: May 20, 1959

Card 3/3

On the Resonance Interaction of π -Mesons

SO7/56-37-3-55/62

of the results obtained there it is found that the following holds:

Theoretical variant	Number of prongs of the star		
	2	4	6
No $(\pi\pi)$ interaction	0.98 ± 0.12	0.99 ± 0.16	2 ± 1.14
With $(\pi\pi)$ interaction (Dyson; $S=0, T=0$)	1.21 ± 0.15	0.83 ± 0.13	0.49 ± 0.28
With $(\pi\pi)$ interaction (Takeda; $S=0, T=1$)	1.38 ± 0.17	0.71 ± 0.11	0.64 ± 0.36

As shown by the above compiled data, the theoretical results, without taking account of a $(\pi\pi)$ interaction, are well able to represent the experimental results. Consideration of the latter (especially in the Takeda variant) only makes them worse. According to the theory without $(\pi\pi)$ interaction the fraction of strange particles produced in inelastic (π^+p) collisions amounts to 8.6% (5.5% K^+ and 0.3% K^0). According to Dyson this fraction amounts to 6.4, and according to Takeda only to 5.7%. Experimentally, however, among 110 inelastic stars only 4 cases of a

21 (7)

AUTHORS: Barashenkov, V. S., Mal'tsev, V. M., SOV/56-37 3 56/62

TITLE: On the Resonance Interaction of π -Mesons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 3(9), pp 884 - 886 (USSR)

ABSTRACT: For the explanation of the (π^+p) cross section maximum near $E = 1$ Bev a number of authors developed the hypothesis of pion-resonance interaction. It also serves the purpose of explaining the great multiplicity in the case of the nucleon-antinucleon annihilation of pions and the inelastic (π^+p) scattering at $E \gg 1$ Bev. The authors of the present "Letter to the Editor" show, however, that the assumption of a ($\pi\pi$) resonance interaction in all these cases (Refs 1-8) is not stringent, because the experimental results may also be explained in a different manner. In this connection the authors investigate the conclusions to be drawn from the assumption of a ($\pi\pi$) resonance interaction for the inelastic interaction of particles at $E \gg 1$ Bev, when many pions are produced. As a concrete example the inelastic (π^+p) collision at $E = 5$ Bev is investigated. Without assuming ($\pi\pi$) resonance interaction, this case has already been dealt with in reference 9. On the basis

Card 1/3

The Production of Strange Particles in (pp)-Collisions
at Energies of 3 Bev

307/56-36-3-50, 74

and 0.07 mb ($V=V_3$). Experimentally, Baumel et al. (Ref 7) obtained the following for the K^+ -production cross section (momentum: $1.9 m_\pi$, $m_\pi = 140$ Mev, $\theta = 180^\circ$ in c.m.s., (pp)-collision at 3 Bev): $\sigma_{\text{exp}} = (4.5 \pm 0.9) \cdot 10^{-32} \text{ cm}^2/\text{steradian/Mev}$, ($\sigma^+ = 0.2$ mb). On the assumption of an isotropic angular distribution in the c.m.s. the present paper obtains a similar value for all momenta for $V=V_2$ $\sigma^+ = 0.33$ mb and for $V=V_3$. This value, however, deviates by several orders of magnitude from the value calculated for $V=V_3$ only on the basis of statistical weights and without using σ_{exp} and the momentum distribution. There are 9 references, σ_{exp} 2 of which are Soviet.

ASSOCIATION:

Ob'yedinennyi institut yadernykh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED:
Card 2/2

October 27, 1958

21(7)

SOV/56-36-3-50/71

AUTHORS: Barashenkov, V. S., Mal'tsev, V. M.

TITLE: The Production of Strange Particles in (pp)-Collisions at Energies of 3 Bev (Rozhdeniye strannykh chastits v (pp)-stolknoveniyakh pri energii 3 BeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 933 - 934 (USSR)

ABSTRACT: In a number of earlier papers the authors developed a statistical theory of the multiple production of strange particles. For (π N)-collisions satisfactory agreement with the experiment is found if the energies of colliding particles are high. Nowadays experimental verification of theoretical computations of (pp)-collisions is also possible. For the inelastic (pp)-collision cross section at 3 Bev 26 mb is assumed, which, according to references 1-3, results in a calculated production cross section for K^+ -particles $\sigma^+ = 1.0$ mb for $V=V_2$ and $\sigma^+ = 0.05$ mb for $V=V_3$. The calculated production cross section for all strange particles is $\sigma_{st} = 1.5$ mb ($V=V_2$)

Card 1/2

MAL'TSEV, V.M.

2¹ (e)
AUTHORS:

Barabankov, V. S., Belyakov, V. A., SOV/89-744-12/28
 Van Shu-fen', Glagolev, V. V., Politschuk, M., Kuznetsov, L. P.,
 Labelev, E. M., Maltsev, V. M., Kuznetsov, V. M., Tolstov, K. D.,
 Ryganov, E. S., Sharanova, E. V., Yao Ch'ing-shieh

TITLE:

The Interaction of Fast Nucleons with Nuclei of the Photo-
 emission NIKFI-R

PERIODICAL:

Atomaya energiya, 1959, Vol. 7, Nr. 4, pp 376-377 (USSR)

ABSTRACT:

The present paper deals with the interaction between 9 BeV-
 protons, which were accelerated in the beam of the synchro-
 tron of the Ob'yedineny Institute Yadernykh Issledovaniy
 (Joint Institute of Nuclear Research), and the nuclei of a
 photoemission of the NIKFI-R type. The results of these
 measurements are shown by a table. On the basis of the data
 thus found it is possible to draw several conclusions as to
 the mechanism of the interaction between a fast proton and a
 nucleus. If the primary nucleon-nucleon collision is as
 interaction between nucleon and nucleon, then the velocity of the
 center of mass in an interaction of silver and bromine with
 the channel will be considerably less than in an interaction
 with light nuclei. Therefore, also the number of π -particles

Card 1/3

must be considerably greater. In the experiment, the numbers
 of π -particles for light and heavy nuclei are, however, nearly
 the same. This is explainable on the basis of the cascade
 mechanism of interaction, in which the energy of the π -particles
 decreases rapidly in cascade collisions. The multiplicity of
 particles produced increases simultaneously. In the case
 of particles produced successively, the number of particles
 which may be explained by the cascade mechanism of nucleon-
 nucleus interaction. Also the agreement between the transverse
 momentum p_{\perp} for π -protons originating from interactions with
 light and heavy nuclei points in the direction of the inter-
 action cascade mechanism. Besides, a search was made for
 strange particles by employing the method of investigating
 secondary particles by means of the NIKFI-R. The production of
 K^0 -particles with an energy $E_{K^0} < 2.5 \times 10$ MeV and a mod-
 erate nuclei of the photoemission amounts to

$(5 \pm 2) \cdot 10^{-27}$ cm². Besides, the amount of the production drops
 section, the wide angular distribution of the π -mesons, as
 well as other facts indicate that a noticeable fraction of

Card 2/3

slow strange particles is produced in an intranuclear cascade
 process. Furthermore, the medium-weight energy losses of a
 fast nucleon are evaluated in the case of a single nucleon-
 nucleus collision. A silver-proton gives up an energy of
 (51 ± 10) MeV. The energy losses of a fast nucleon in a nucleus
 which amounts to (60 ± 10) MeV for initial energy of the nucleon,
 are used for the production of pions and π -mesons. The energy
 transferred to the nucleons of the nucleus. As a proton in an interac-
 tion nucleus undergoes approximately 2 collisions, the fraction
 of its initial energy. By means of other measurements of the
 pion energy spectrum carried out independently of the present
 paper in a nucleon-nucleon collision $\Delta E = 40 \pm 10$ MeV is obtained.
 The statistical theory of multiple production furnishes
 $\Delta E = (40 - 50)$ MeV. The authors thank S. Berezinich, V. Yablina,
 Z. Kuznetsov, and N. Katkov for their help in the measurements,
 and L. Popova for assistance in analyzing measuring results.
 There are 1 table and 1 reference.

Card 3/3

MAL'TSEV, V.M.

Evaluating the efficiency of lead converters. Prib.i tekhn.eksp.
no.1:28-32 Ja-F '59. (MIRA 12:4)

1. Ob'yedinennyi institut yadernykh issledovaniy.
(Radioactivity--Instruments)

MALTSEV V. M.

C

POLAND/Nuclear Physics - Elementary Particles.

Abs Jour : Ref Zhur Fizika, No 1, 1960, 395

Author : Barashenkov, V.S., Maltsev, V.M.

Inst : Joint Institute for Nuclear Research

Title : On the Magnitude of Strange Particle Production Cross Section in Nucleon-Nucleon Collisions at Cosmotron Energy

Orig Pub : Acta phys. polon., 1958, 17, No 6, 397-400

Abstract : Using statistical theory methods the authors have calculated the momentum spectra and the probability of production of pions, nucleons, and strange particles in NN collisions at $E \approx 3$ bev. The theoretical cross section of production of K mesons is approximately three times greater than the experimental value (Referat Zhur Fizika, 1958, No 7, 15013). It is

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- 22 -

POLAND/Nuclear Physics - Elementary Particles.

C.

Abs Jour : Ref Zhur - Fizika, No 7, 1959, 14836
Author : Barashenkov, V.S., Maltsev, V.M.
Inst : Joint Institute for Nuclear Research
Title : Multiple Production of Unstable Particles in Pion-Nucleon Collisions
Orig Pub : Acta phys. polon., 1958, 17, No 2-3, 177-182
Abstract : The Fermi statistical theory leads too large a number of produced strange particles. A model is proposed in which the relative fraction of the produced pions, nucleons, strange particles, and anti-particles is in better agreement with experiment. It is proposed that the statistical equilibrium for K mesons is established in a three dimensional volume with a radius $r_K = \hbar/m_K c$, and for other particles in a three dimensional volume with a radius

Card 1/2

BARASHENKOV, V. S., BELYAKOV, V. A., BUBELIEV, E. G., WANG SHOU FENG, MALTSEV, V. M.
TEN GYN, and TOLSTOV, K. D.

"Multiple Production of Particles in Collisions between 9 GeV Protons and
Nucleons." Nuclear Physics, vol. 9, No. 1, Nov. 1958.

Joint Inst. Nuclear Research. Lab. Theoretical Physics and High Energy Lab.,
Dubna USSR

Abstract: Some theoretical calculations pertaining to multiple production of
particles in nucleon-nucleon collisions at 7-10 GeV were presented in ref 1.
Some preliminary experimental results obtained by irradiating photographic emulsions with
proton beam from the synchrocyclotron of the Joint Inst Nuclear Research were
given in ref. 2. In the present paper we compare the theoretical results of ref. 1.
with the results of some new experiments. 372 stars, of which ~~12~~ 50 were classified as
proton-nucleon collisions, were recorded in NIKFI-R photographic emulsions along the
~~tracks~~ tracks of \approx 9 GeV protons accelerated in the JINR proton synchrocyclotron.
The mean number of charged particles created in these collisions was 3.6 ± 0.5 . The
angular distribution of fast charged particles is obtained. As a whole the
experimental results agree with the statistical theory of multiple particle production
within the limits of the experimental errors. Some discrepancy is evident in the
small angle range and may be due to the contribution of non-central impacts and
to asymmetry of the angular distribution in the c.m.s.

POKHIL, F.F.; MAL'TSEV, V.M.; LUKASHEV, G.V.

Burning of ballistite powders. Dokl. AN SSSR 135 no.4:913-916 '60.
(MIRA 13:11)

1. Institut khimicheskoy fiziki Akademii nauk SSSR. Predstavleno
akademikom V.N.Kondrat'yevyn.
(Gunpowder, Smokeless)

MAL'TSEV, V.M.; PROKOSHIN, Yu.D.

Secondary processes in the production of \bar{J} -mesons from nuclei.
Zhur. eksp. i teor. fiz. 39 no. 6:1625-1629 D '60. (MIRA 14:1)

1. Ob'yedinennyy institut yadernykh issledovaniy.
(Mesons)

SOV/120-59-1-5/50

Calculation of the Efficiency of a Lead Converter

second stage of the cascade is absent for $d = 0.1$ cm. At $d = 0.7$ cm the probability of the second and subsequent stages appearing is 0.1. When the incident energy is 500 Mev the probability of the appearance of the second stage is such as to have little effect on the efficiency of the converter calculated using the first stage only. It follows that for $d = 0.1 - 0.7$ and $E_0 = 50-500$ Mev only the first stage of the cascade need be considered; subsequent stages involve only a 1% correction. There are no figures, 4 Soviet references, of which 3 are translations from English.

ASSOCIATION: Ob"Yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Studies)

SUBMITTED: February 10, 1958.

Card 2/2